



ARIZONA DEPARTMENT OF HEALTH SERVICES

Arizona Vaccine News

Karen Lewis, M.D.

Medical Director

Arizona Immunization Program Office

October 5, 2016

Douglas A. Ducey | Governor Cara M. Christ | MD, MS, Director

150 North 18th Avenue, Suite 120, Phoenix, AZ 85007-3247 P | 602-364-3630 F | 602-364-3285 W | azdhs.gov

Health and Wellness for all Arizonans

Newsletter Topics

VACCINE NEWS

- Considerations in Developing a Zika Virus Vaccine
- Potential Timeline for Developing a Zika Virus Vaccine
- Reappearance of Polio Cases in Nigeria

INFLUENZA AND INFLUENZA VACCINES

- CDC Seasonal Influenza Vaccine Recommendations
- The Safety of Influenza Vaccines in Children
- Influenza Vaccine Coverage in United States Healthcare Personnel, 2015-2016
- Influenza Vaccine Coverage in United States Pregnant Women, 2015-2016

LITERATURE ON VACCINES AND VACCINE-PREVENTABLE DISEASES

- Efficacy of an Investigational Recombinant Zoster Vaccine
- Decrease in Cervical Cancer with HPV Vaccine Use
- AAP Supports Doing Away with Nonmedical Immunization Exemptions
- Parental Country of Birth Influences Children's Level of Vaccination
- Vaccines Being Developed to Prevent Hospital-Acquired Infections
- Males More Likely than Females to Get Invasive Pneumococcal Disease
- Adolescent Vaccine Coverage in 13-17 Year Olds in the United States

VACCINE SAFETY

- Tdap Use during Pregnancy Results in No Adverse Effects to Mothers and Infants
- Countering Vaccine Hesitancy

RESOURCES

- Toolkit to Improve Influenza Vaccination in Personnel in Long-Term Care Facilities
- Influenza Vaccine Products for the 2016-2017 Influenza Season



DO YOU KNOW?

- Which vaccines are recommended for patients who need a splenectomy?

VACCINE NEWS

Considerations in Developing a Zika Virus Vaccine

- Development of a safe, effective Zika vaccine should be feasible since there are effective vaccines against related flaviviruses.
- The primary goal of Zika vaccination is to prevent infection and protect against serious sequelae such as fetal congenital anomalies following *in utero* infection.
- Due to the relatively low frequency of congenital infections in relation to the total number of Zika infections, showing vaccine efficacy against congenital sequelae in prelicensure trials may not be feasible within a reasonable time frame. Demonstrating that vaccination averts congenital anomalies will most likely require postlicensure studies.

See the commentary by Dr. H.D. Marston et. al. in *New England Journal of Medicine* (NEJM), [September 29, 2016](#).

Potential Timeline for Developing a Zika Virus Vaccine

- Two DNA Zika Virus (ZIKV) vaccine candidates have entered phase 1 human safety testing.
- The time required to develop a safe, efficacious ZIKV vaccine will be determined by prior experience with the selected technology, the continuation of outbreaks against which to test the vaccine, and overcoming the barriers to large-scale manufacturing.

See the commentary by Dr. S.J. Thomas et. al. in NEJM, [September 29, 2016](#).

Reappearance of Polio Cases in Nigeria

- Two years after the World Health Organization (WHO) had declared Nigeria polio-free, two children have been diagnosed with paralytic polio in northern Nigeria.
- These cases highlight the challenges of immunization of children in hard-to-reach areas that are affected by conflict and large population movements.

See the WHO media release from [August 11, 2016](#).

INFLUENZA AND INFLUENZA VACCINES

The Centers for Disease Control and Prevention (CDC) Seasonal Influenza Vaccine Recommendations

- 6 months-8 years old children who received ≥ 2 doses of influenza vaccine in previous season(s) only need 1 dose of inactivated influenza vaccine this season.
- Egg allergy recommendations have been modified.
- Live attenuated influenza vaccine is not recommended in the US for the 2016-2017 influenza season.

For more details, see MMWR (RR-05), [August 26, 2016](#).



The Safety of Influenza Vaccines in Children

- An Institute for Safety White Paper extensively reviews articles on the safety of influenza vaccine in children.

See the article in *Vaccine*, [December 30, 2015](#).

Influenza Vaccine Coverage in United States (US) Healthcare Personnel, 2015-2016

- The overall estimate of influenza vaccination coverage among healthcare personnel during the 2015–16 season was 79.0%.
- Higher influenza vaccination coverage was associated with employer vaccine requirements and with employee access to vaccination at the workplace at no cost.
- Long-term care setting healthcare workers had consistently lower coverage than those working in hospital and ambulatory care settings.
- Physicians had the highest and aides/assistants had the lowest percentages of influenza vaccine coverage.

See the article in *Morbidity and Mortality Weekly Report* (MMWR), [September 30, 2016](#).

Influenza Vaccine Coverage in US Pregnant Women, 2015-2016

- A CDC internet survey showed that 49.9% of pregnant women received influenza vaccine during the 2015-2016 influenza season.
- When their healthcare provider recommended and provided influenza vaccine, 67.6% of pregnant women were vaccinated. However, only 19.9% received influenza vaccine when their healthcare provider neither recommended nor provided it.

For demographic analyses of influenza vaccine receipt in pregnant women, see the CDC [FluVaxView](#) website.

LITERATURE ON VACCINES AND VACCINE-PREVENTABLE DISEASES

Efficacy of an Investigational Recombinant Zoster Vaccine

- The efficacy of an investigational intramuscular herpes zoster subunit vaccine was studied in patients ≥ 70 years old. The vaccine combined a recombinant varicella zoster virus glycoprotein E with an ASO1 adjuvant (HZ/su).
- Patients received either two doses of vaccine or a placebo separated by 2 months.
- During a four year follow-up, shingles occurred in 23 HZ/su recipients and in 223 placebo recipients, giving a vaccine efficacy of 89.8%. There was no decline in vaccine efficacy with age.
- Vaccine efficacy against postherpetic neuralgia was 88.8%.

See the article in *New England Journal of Medicine*, [September 15, 2016](#).



Decrease in Cervical Cancer with HPV Vaccine Use

- Reductions in cervical intraepithelial neoplasia (CIN) incidence were significant for all grades (CIN 1, 2, and 3) among females 15 to 19 years old and for CIN grade 2 among women 20 to 24 years old during the period from 2007 to 2014 in New Mexico.
- Reductions in CIN were greater than anticipated based on vaccination coverage, thus supporting vaccine cross-protection, efficacy of less than 3 vaccine doses, and herd immunity contributions.

For the full article, see *JAMA Oncology*, early release [September 29, 2016](#).

AAP Supports Doing Away with Nonmedical Immunization Exemptions

- The American Academy of Pediatrics (AAP) supports regulations and laws requiring certification of immunization to attend child care and school.
- The AAP also supports medically indicated exemptions to specific immunizations as determined for each individual child.
- The AAP views nonmedical exemptions to school-required immunizations as inappropriate for individual, public health, and ethical reasons and advocates for their elimination.

See the entire Policy Statement in *Pediatrics*, [August 2016](#).

Parental Country of Birth Influences Children's Level of Vaccination

- Children of US-born parents in Washington state were more likely to receive vaccines for measles, pneumococcal disease, hepatitis A, and pertussis compared with those with Ukrainian-born and Russian-born parents, but they had a lower likelihood of getting these immunizations than children of Mexican-born and Indian-born parents.

See the abstract in *Pediatrics*, [July 2016](#).

Vaccines Being Developed to Prevent for Hospital-Acquired Infections

- Vaccine candidates in late-stage development include vaccines for *Clostridium difficile*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa*.

See the abstract in *Clinical Infectious Diseases*, [September 1, 2016](#).

Males More Likely than Females to Get Invasive Pneumococcal Disease

- Rates of invasive pneumococcal disease (IPD) were higher in male than in female subjects (irrespective of race), particularly in children <2 years old and adults 40–64 years of age during the period of 1998–2013 in Tennessee.
- Male subjects had IPD rates 1.5–2 times higher than female subjects even though the proportions of underlying health conditions were similar.
- Rates of IPD after introduction of pneumococcal conjugate vaccines (PCV7 and PCV13) were still significantly higher in male than in female subjects among children, adults 40–64 years, and those over 74 years of age.

See the abstract in *Journal of Infectious Diseases*, [September 1, 2016](#).

Adolescent Vaccine Coverage in 13-17 Year Olds in the US

- The National Immunization Survey—Teens, 2015 shows vaccine coverage for adolescent vaccines in 13-17 year olds: Tetanus-diphtheria-acellular pertussis (Tdap), quadrivalent conjugate meningococcal ACYW (MCV4), and human papillomavirus (HPV) vaccine.
- Arizona adolescents have higher vaccine coverage than the national average except for males receiving ≥ 3 doses of HPV vaccine.
 - ≥ 1 Tdap in US: 86.5%; in AZ 86.6%
 - \geq MCV4 in US: 81.3%; in AZ 87.6%

Receipt of HPV Vaccine in 13-17 years old, 2015			
		≥ 1 dose	≥ 3 doses
Female	US	62.8%	41.9%
	AZ	68.3%	44.2%
Male	US	49.8%	28.1%
	AZ	51.3%	27.0%

For state-by-state maps and graphs of increases of adolescent vaccine coverage over time, see the article in MMWR, [August 26, 2016](#).

VACCINE SAFETY

Tdap Use during Pregnancy Results in No Adverse Effects to Mothers and Infants

- No adverse events to either mother or infant were found when 1,759 pregnant women received Tdap during pregnancy.
- Maternal Tdap vaccination was associated with decreased odds of cesarean delivery.

See the article in *Human Vaccines and Immunotherapeutics*, [March 22, 2016](#).

Countering Vaccine Hesitancy

- The American Academy of Pediatrics has published guidance for addressing parents' concerns about vaccines.

See the document in *Pediatrics*, [August 2016](#).

RESOURCES

Toolkit to Improve Influenza Vaccination in Personnel in Long-Term Care (LTC) Facilities

- National influenza vaccination [coverage](#) among healthcare personnel in LTC facilities continue to trail behind other healthcare settings.
- An online influenza vaccination toolkit is available for employers to improve influenza vaccination level in their staff.

See the toolkit on the CDC's Influenza [website](#) for ways to improve influenza vaccination in LTC facilities.



Influenza Vaccine Products for the 2016-2017 Influenza Season

- The Immunization Action Coalition has created a table that provides detailed information about this season's influenza vaccines: manufacturer, trade name, how the vaccine is supplied, mercury content, recommended age group, and billing codes.

See the [table](#) on the Immunization Action Coalition [website](#).

DO YOU KNOW?

Which vaccines should patients receive if they need a splenectomy?

- Patients with asplenia (congenital, acquired, or functional) are at high risk for infections by bacteria that have a polysaccharide capsule, such as *Streptococcus pneumoniae*, *Neisseria meningitidis*, and *Haemophilus influenzae* type b (Hib). Asplenic patients should be vaccinated as soon as possible against these bacteria.
- Antibody responses are best when the vaccines for polysaccharide encapsulated vaccines are given at least 2 weeks before an elective splenectomy (because the spleen plays an important role in processing polysaccharide antigens).
 - In a situation where the spleen needs to be removed emergently, it is still beneficial to vaccinate before surgery (if the recommended vaccines have not been previously given), even if the vaccines will be given less than 2 weeks before splenectomy.
- After splenectomy, the patient should continue to receive any needed additional pneumococcal, meningococcal, or Hib vaccine that they were not able to receive before splenectomy.

More information about recommended vaccines for patients with asplenia can be found in:

- The 2016 CDC adult vaccination [schedule](#).
- MMWR (RR-02), [January 28, 2011](#), p. 22.
- The CDC webpage "[Asplenia](#) and Adult Vaccination."
- *Pediatrics*, [December 2014](#).
- Vaccine information in the bacteria-specific chapters of the [Red Book](#) of the American Academy of Pediatrics, 30th edition.

- Please feel free to distribute ADHS' *Arizona Vaccine News* to any of your partners who may be interested. If you wish to unsubscribe, email karen.lewis@azdhs.gov. Past issues of *Arizona Vaccine News* and the Arizona Immunization Program Office's *Immunications* newsletter are at <http://www.azdhs.gov/phs/immun/vacNews.htm>.